Automated Story Generation with Multiple Internal Focalization

Byung-Chull Bae*, Yun-Gyung Cheong*, and R. Michael Young**, *Member, IEEE*

***Abstract*—In this paper we describe our ongoing effort for automated story generation with a computational model of focalization using a planning-based approach. To generate narrative with focalization, we suggest the use of different plan libraries for story characters. Based on the narrative theories on focalization, we also introduce the concept of focalizing factors to generate stories with multiple internal focalization, with the illustrated example of Rashomon (film directed by Akira Kurosawa, 1950). We believe that our approach might be beneficial for interactive storytelling and story-based games for both entertainment and educational purposes.**

I. Introduction

For the last decades, we have witnessed that story has played important role in games. Games employed stories as strong motivation to involve game players as in the video games *Fallout 3: New Vegas* [20] and *Assassin's Creed* [21]. Furthermore, recent game titles such as *Heavy Rain* [22] have successfully shown the possibility that interactive fiction games can provide gamers with a new experience where the player's decision leads to different story endings and his emotional attachment to the game characters are valued as much as physical actions and navigation.

As an attempt to analyze stories, several narrative theories have suggested tripartite structural models: *fabula* (or story world), story (or *sjuzhet*, plot) and text (discourse) [2][14]. The story world is a mental representation of the story in the reader which contains every detail happening in the story [15] while the discourse is the final medium (e.g., 3D animation, text, film, etc.) conveyed to the story consumer. The *sjuzhet* (plot) here contains only the story events constituting the discourse. For instance, the Heavy Rain game begins with a scene where Ethan Mars, one of the main characters, wakes up from the bed in his house and finds a note saying that his wife is going for shopping and will come back with his two sons from school. Here, this scene corresponds to the discourse which is directly presented to the viewers; whereas the scene showing her shopping and picking up their sons constitute the story world, although it is not directly shown in the game. Since the story world contains every detail, there is too much to tell. Therefore, the story designer needs to make decision what to include in the discourse among the events in the story world.

Focalization, telling a story from a particular point of view, is an important narrative device. The concept of 'focalization' has been used and developed by many narratologists such as Genette [6] and Bal [2]. Genette has viewed focalization as a vehicle to remove unnecessary information in the story world by focusing on important events. Toolan [17] explains focalization as "a limited perspective in narrative, a viewpoint from which things are implicitly seen, felt, understood, and assessed." Therefore, in narrative, focalization can serve dual roles: (a) as an information filter; (b) as a window through which the reader/audience can view or perceive the events occurring in the story world [6][8]. While both roles are important, this paper concentrates on the second role—limiting the reader's perception of what happened (or what is happening) in the story world. We use the Genette's term of "*focus of narration*" [6] which characterizes focalization as a working definition in this paper. In our approach, the *focalizer* is defined as the person who sees in a story and the *focalized* means the object or event that is perceived by the focalizer [6][14].

Genette [6] defines three types of focalization – zero, external and internal. Zero focalization tells a story with the omniscient point of view. External focalization focuses on the perceptible aspects of characters (e.g, behavior and appearance); internal focalization focuses on the inner thoughts and feelings of characters. External focalizer is objective but may have less knowledge than other characters in the story. According to Todorov [16], the narrator knows more than the character in zero focalization, knows less than the character in external focalization, and knows as much as the character in internal focalization since the narrator can access to the character's inner thought and feelings.

In case of internal focalization, focalizer can be of three types [6]: (1) *fixed* in which everything is told from the point of view of a particular character in the story (e.g., Dr. Watson in most Sherlock Holmes stories); (2) *variable* in which story events are told from the point of view of variable characters in the story from character to character consecutively (e.g., Madame Bovary); (3) *multiple* in which story is presented from the different points of view of multiple characters in the story (e.g. Akira Kurosawa's film Rashomon).

The use of multiple internal focalization can be found in recent interactive fiction games. In Heavy Rain, for example, the player plays the game through the vantage points of four main characters (a father of the next victim, an investigative journalist who is involved in the Origami killer case, and a private detective and an FBI profiler who are tracking down the killer), experiencing different events in the story world. We regard this as the practice of variable internal focalization. If those events experienced by the four characters are largely

*B. Bae and Y. Cheong are with Center for Computer Games Research, IT University of Copenhagen, Copenhagen S 2300, Denmark (corresponding author e-mail: byungchull@gmail.com;yugc@itu.dk).

**R. M. Young is with Digital Games Research Center, Department of Computer Science, North Carolina State University, Raleigh, NC 27695 USA, (e-mail: young@csc.ncsu.edu).

978-1-4577-0011-8/11/$26.00 ©2011 IEEE

overlapped each other, the game will fall in the multiple internal focalization.

This paper focuses on a planning-based approach to modeling multiple internal focalization in which a specific time span of the story world is iterated and represented through different perspectives of the story characters.

II. Related Work

A. Multiple Focalization in Literature and Film Narrative

From classical novels to modern films, internal/character focalization has been often used to portray specific events in detail through the eyes of particular characters in the story. By determining what is focused to tell (or to show), focalization is closely related to both the sjuzhet layer (i.e., content or what to tell) and the discourse layer (i.e., expression or how to tell the story). The focalized events and objects (including intangible things such as emotions or inner thoughts of characters) can be detailed in a highlighted manner. Particularly in the case of multiple internal focalization, the duration and frequency of presenting the focused events or objects depend on the focalizing character. The repetition of story through different perspectives therefore can provide the reader with new information (or experience) that has not been revealed though the vantage points of previous focalizers. Furthermore, the manipulation of contents to present using focalizing characters can create the disparity of knowledge among characters and the reader/audience. This disparity of knowledge will contribute to creating the reader's cognitive emotions such as suspense (when the reader knows more than the story character) [5] or surprise (when the reader knows less than the story character) [1]. It will also contribute to the generation and resolution of conflicts stemming from different point of views [4].

In Jonh Fowles's 1963 book *The Collector*, for example, character focalization is effectively used to depict the inner states of the mind of the protagonists. In the book, the story is narrated sequentially by two main characters, Clegg and Miranda, with their own perspectives. As a result, the reader can experience and understand the two opposite situations in turn – one with the mind of the collector/murderer and the other with the mind of the victim.

In films, such as Rashomon (1950, directed by Akira Kurosawa), multiple internal focalization is used as a convincing narrative tool to represent how a story can be multiply viewed and constructed depending on the focus of narration. More detailed analysis of the focalization features of Rashomon is described in Section IV.

B. Computational Storytelling

Conventional planning-based story generation approaches are divided into two categories: character-centric and author-centric approaches. The character-centric approach creates a story from the interaction between autonomous agents regarding each agent as an actor in the story, usually given specific goals to achieve. The author-centric approach constructs a global plan that contains all the actions (of every character in a story) over the story's entire duration. The autonomous approach is preferred when the story stresses the character believability; meanwhile the author-centric approach is appropriate for a story focusing on its dramatic situation.

The planning-based story generation approaches employing zero focalization [6] allow the system to occupy omniscient position; that is, a story is narrated from the perspective of the system, which can access any objects and events over narrative time. These approaches do not provide the system with an option to choose between internal and external focalization. Moreover, these approaches employ global knowledge shared among different characters, excluding the possibility of creating different discourses when narrated from different character's point of views.

C. Focalization in Computational Narrative

There is growing awareness of the fundamental role of focalization in games and interactive storytelling [7][9][11][19]. As an effort to use focalization in interactive storytelling, MacIntyre and Bolter [7] present a system that shows different aspects of a single story, viewed from characters that the user selects. The results from their self-testing suggest that stories narrated from different orders of perspectives would yield different experiences to the viewers. The use of focalization is not limited to entertainment purposes. For instance, in educational systems employing narrative as a tool, exposing the learners to stories told from various perspectives may promote their balanced thinking.

Montfort [9] presents Curveship, a text-based interactive fiction system which contains a story simulator, world models, and a narrator component. As a human user, an adventurer, interacts with the system through textual input, the system updates the world models with the changes in the underlying simulated world. Each world model is associated with a potential focalizer and only those events that can be perceived by the focalizer are recorded in model. When a narration from a particular focalizer is requested, the system recounts the story by looking at the model related to the chosen focalizer. For instance, the sentence "The pirate waved. Meanwhile, you went to an unknown location." recounted from the adventurer's perspective can be re-told as "You waved. Meanwhile, the adventurer walked to the building's interior." when focalized by the pirate. It is noted that the discrepancy between the adventurer's and the pirate's world models (e.g., knowledge, perception) allows the narrator component to describe the location unknown to the adventurer and known to the pirate respectively.

Porteous et al. [11] uses a planning-based approach to build a computational model of focalization for interactive storytelling under multi-agent virtual environments, presenting a meta-level narrative representation to generate stories from different perspectives. In their model, a baseline plot is represented as a network of nodes, where each node contains point of views (PoVs) and constraints. When a specific PoV is selected, the story generator traverses the

network and selects a series of constraints associated with the chosen PoV. Those constraints serve as story goals which are further decomposed into primitive actions by a planner. Finally, the series of primitive actions constitutes a story, which is told from a specific point of view. The focus of their work is to create a consistent story which balances between characters and the plot by employing PoV as a kind of high level authorial goal. Therefore, their model does not aim at evoking particular effects (e.g., surprise, suspense) by telling a story from different point of views.

Unlike literature or films, many computer games so far have paid more attention on the external behaviors of the characters than the inner mental states of them. To address this issue, Zhu et al. [19] claim that the expression of the character's inner states may be crucial to build emotional bonds between the player and the game characters. Based on the concept of narrative perspectives, Zhu et al. classify the perspectives of existing computer games into four types (first-person internal, first-person observer, third-person observer, and omniscient player), focusing on how the emotions of the player character can be effectively revealed in the virtual environment with the internal perspectives and/or the external perspectives. Zhu et al. also adopt the theory of conceptual blending to represent the emotional change of the player character, using morphing animation effect.

In this paper, we present a computational approach to generating stories when employing multiple characters' perspectives, which is still in early development phase. Although the variations of surface realization adopting a particular perspective are another important issue in focalization, it is beyond the current scope of this paper.

III. Planning-Based Approach

In this Section we explain a planning-based computational approach to story generation and introduce our approach using the concept of focalization.

A. Planning-based Story Generation

In the planning approach to story generation [1][5][10][11][13], a story is represented as a plan that describes the actions of the story characters. Similarly, the story plan in this paper consists of a series of plan steps and their temporal and causal relationships where each plan step corresponds to an event. To represent a character's knowledge in a given domain, a set of operators is defined as a plan library. Each operator in a plan library has its unique name, a set of preconditions and effects, and a set of variables that shall be instantiated during the planning process. The preconditions of an action (i.e., an instantiated operator) represent just those conditions that must hold for the action to be able to happen while the set of effects denotes just those conditions that are changed by the action's successful execution. When a planning problem (i.e., the initial state and goal state of the story) and plan operators are provided as input to a planning system, the planner builds a sequence of actions that will achieve the goal state when executed from the initial state.

B. Planning-based Focalization: External and Internal

The distinctive story generation through external and internal focalization can be implemented by manipulating plan libraries. First, our approach creates a plan library for individual character. Second, the system allows categorizing or semantically tagging the knowledge in those plan libraries (i.e., initial and goal conditions, preconditions and effects of plan operators). Third, internal focalization describing a character's thought can be realized by modeling each character's reasoning process.

For instance, Rimmon-Kenan [14] characterizes the aspects of focalization in terms of perception, psychology, and ideology: (1) the perceptual facets involve what the focalizer perceives such as seeing, hearing, and smelling; (2) the psychological facets need privileged access to the cognitive and emotive status of the focalized; (3) the ideological facets deal with a character's conceptual views of the world.

The perceptual facet can be computationally controlled by determining which events of a story are exposed to an agent who performs the role of the focalizer. The system can also tune the psychological facet of focalization depending on how much cognitive and emotive information is considered when encoding preconditions and effects of plan operators. In such systems, only the knowledge corresponding to the category 1 in Rimmon-Kenan's classification can be told in the externally focalized story version. And the category 2 and 3 can be used when intending to create internally focalized stories. As an example of the category 2 knowledge representation, plan operators in the affective storytelling system by Pizzi and Cavazza [10] contain emotional knowledge such as feeling bored, proud, concerned-with, and satisfied.

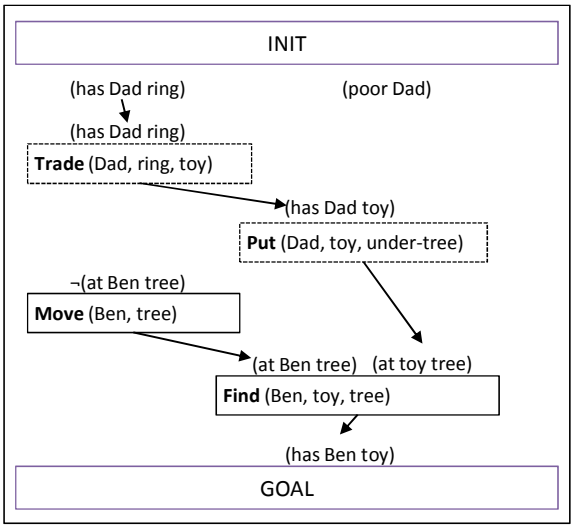


Figure 1. A story that describes a father's getting a Christmas present for his son Ben (where dotted line boxes are unknown actions to Ben).

With a (partial or complete) story plan given, internally focalized stories can be generated by using the plan library that a particular character uses to achieve a given story goal. Interesting stories can be generated in this process if the system allows agents to have different plan libraries. In this case, a story plan produced by Agent A using its plan library may not be reasonably explained or imagined by another agent B when they disagree on critical causal relationships each of which links one event with another event in the story.

The plan in Figure 1 illustrates a simple story generation process where a father is getting a toy for his seven-year old son Ben as a Christmas gift. In the diagram, time proceeds from the top to the bottom. Boxes represent actions, with preconditions above. An arrow shows a causal relationship which represents that the action at the starting point establishes the precondition of the action at the end point. Actions surrounded by dotted-lines, e.g., *Trade* and *Put*, indicate that they are unknown to Ben. The plan in Figure 1 is constructed to achieve the goal (i.e., Ben's having a toy) from the given initial state (i.e., the father is poor and he has a ring). The plan can be described as following: "A poor father traded his wedding ring for the toy that his son Ben wants to have. He then put the toy under their Christmas tree. The next day Ben walked to the tree and found the toy that his father left." In this story, the father (or omniscient focalizer) is accessible to all the events. However, the story does not describe the characters' inner thoughts or feelings. Therefore, narrating those actions constitutes an externally focalized story.

On the other hand, Figure 2 depicts another version, focalized by the story character Ben who was only accessible to the *Move* and *Find* actions. Ben, having a plan library lacking in the plan operator *Trade* and knowing the fact that his father was too poor to buy the toy (which is given as an initial condition), fills in the missing part of the story by instantiating the *Put* action with Santa Clause, as the agent of leaving the toy. Since the *Put* action is created from Ben's reasoning process, narrating a story including *Put* action corresponds to internal focalization. When the plan operators contain emotional information which is revealed through storytelling, it also corresponds to internal focalization. For instance, if Ben's emotion (e.g., happy with the toy or disappointed with the toy) is included in the discourse, then we call it internal focalization.

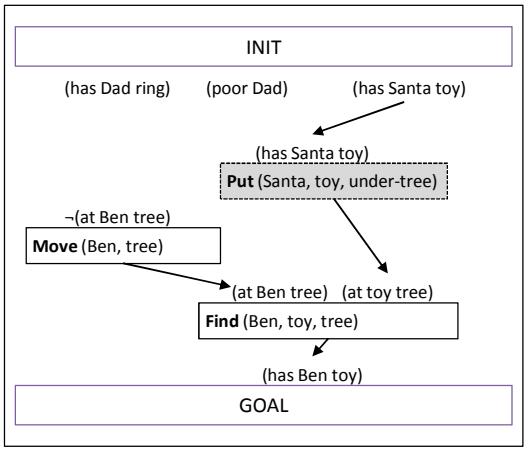


Figure 2. A story of getting a Christmas present viewed by Ben (where Ben's inferred action is represented as a grey-colored box surrounded by a dotted line).

As seen in Figure 1 and Figure 2, the planning factors that can influence the differences of output story using focalization (either external or internal) are initial/goal conditions and plan libraries. We classify focalization into six cases based on the discrepancy in two characters' plan libraries (in addition to the differences of initial conditions and goal conditions) as listed in Figure 3 as follows:

- Use of different *operators*: case 1 and 2
- Use of different *preconditions* for the same operator: case 3 and 4
- Use of different *effects* for the same operator: case 5 and 6

The cause of Ben's inferred story differing from the actual story falls in the case 1 as shown in Figure 3, being explained by their use of different plan operators when regarding Ben as the character B and his father as the character A.

C. Planning-based Multiple Internal Focalization

Multiple internal focalization, as explained earlier, allows

Case 1: $\alpha \in L_A$ and $\alpha \notin L_B$
An operator (α) in the character A's library (L_A) is absent in the character B's library (L_B).

Case 2: $\alpha \notin L_A$ and $\alpha \in L_B$
An operator (α) which is absent in the character A's library (L_A) is present in the character B's library (L_B).

Case 3: $\alpha \in L_A$ and $\alpha \in L_B$, $p \in P_A\alpha$ and $p \notin P_B\alpha$
An operator (α) is present in A and B's libraries. However, a precondition (p) of the operator the A's library is absent in $P_B\alpha$, the set of preconditions of the operator in B's library.

Case 4: $\alpha \in L_A$ and $\alpha \in L_B$, $p \notin P_A\alpha$ and $p \in P_B\alpha$
An operator (α) is present in A and B's libraries. However, a precondition (p) of the operator in B's library is absent in $P_A\alpha$, the set of preconditions of the operator in B's library.

Case 5: $\alpha \in L_A$ and $\alpha \in L_B$, $w \in E_A\alpha$ and $w \notin E_B\alpha$
An operator (α) is present in A and B's libraries. However, an effect (w) of the operator in A's library is absent in $E_B\alpha$, the set of effects of the operator in B's library.

Case 6: $\alpha \in L_A$ and $\alpha \in L_B$, $w \notin E_A\alpha$ and $w \in E_B\alpha$
An operator (α) is present in A and B's libraries. However, an effect of the operator in B's library is absent in $E_A\alpha$, the set of effects of the operator in A's library.

Figure 3. Six Possible Focalization Cases in Terms of the Differences of Plan Libraries between Two Characters

the reader to experience the same story from different views as many times as the number of focalizing characters in the story. In the previous section, we explained focalization using the concept of different plan libraries and different planning problems (i.e., initial and goal conditions). In multiple internal focalization, each focalizing character has her own plan library in order to generate her own story plan. The initial and goal conditions reflecting the focalizing character's belief, knowledge or desire may also differ, contributing to different versions of the same story.

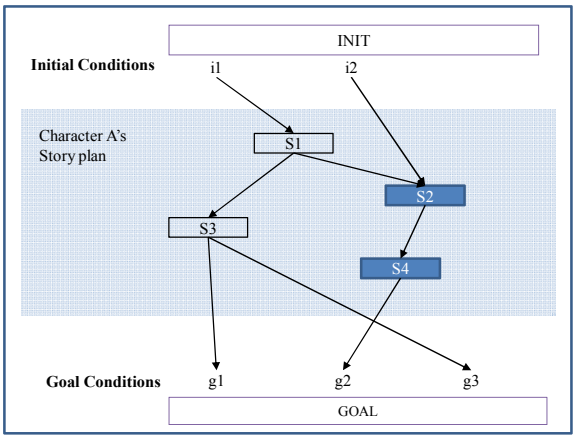
The stories generated by different focalizing characters contain some shared events and non-shared events. The shared events are observed or experienced by a set of focalizing characters and being repeated in stories. The non-shared events occurred only to some particular focalizing characters, giving variation to the generated stories.

The shared events help the reader recognize that the same story is being iteratively told; the non-shared events give the reader new information or experience despite the iteration. In order to explain how the non-shared events could occur only to some particular focalizing characters, we introduce the notion of *focalizing factors* which can be set from the input by the author or the story designer.

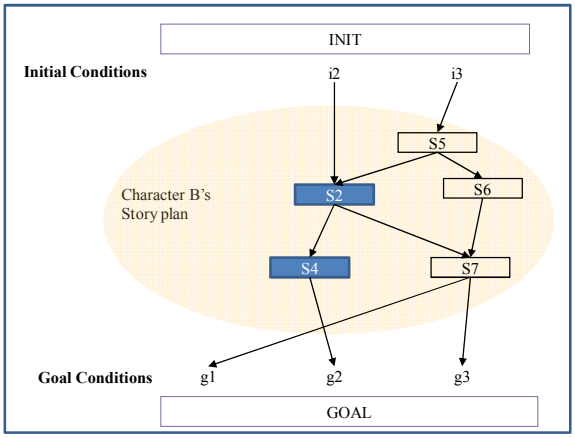
Focalizing factors can enforce the focalizing character to build a story plan in a certain way. The focalizing factor is what the focalizing character is focused on during narrative time. It can represent the character's inner state of mind at the moment (e.g., belief, desire, intention, and emotion) or a certain story event, influencing the selection of action operators to achieve the given goal. Although implementation details of focalizing factors are determined by the system designer and the author, we characterize the focalizing factors as being consistent with the story that the focalizer constructs.

Figure 4 illustrates multiple internal focalization where two story plans for characters *A* and *B* are generated. The character *A*'s story plan (consisting of plan steps *S1*, *S2*, *S3*, and *S4*) achieves the goal conditions represented as the conjunction of *g1*, *g2*, and *g3*, using two initial conditions represented as the conjunction of *i1* and *i2*. The character *B*'s story plan (consisting of plan steps *S2*, *S4*, *S5*, *S6*, and *S7*) achieves the same goal conditions, using two initial conditions represented as the conjunction of *i2* and *i3*. Both of the plans share some initial conditions and actions (*i2*, *S2*, and *S4*). They also have their own distinctive conditions and actions (i.e., *i1*, *S1* and *S3* for *A*'s plan; *i3*, *S5*, *S6*, and *S7* for *B*'s plan). The representation in this example is based on the open world assumption where the conditions which are not specified are assumed to be unknown. In other words, from the character *A*'s viewpoint, the initial condition *i3* can be either true or false. Likewise, from the character *B*'s viewpoint the truth of *i1* can be either true or false. As described above, the focalizing factor used to build a story shall not be contradictory to the story. Therefore, the final story plan built by A, consisting of the steps (*S1*, *S2*, *S3*, and *S4*) along with the initial conditions (*i1* and *i2*) and causal relationship, must ensure that the focalizing factor holds true. For instance, imagine that A's focalizing factor is an action or belief threatening the causal link between *S6* and *S7*. To be consistent with the focalizing factor, A's story selection avoids having *S6* and *S7*. Likewise, B's focalizing factor, the negation of *i1* in the initial state for example, enforces the story selection as shown in Figure 4(b).

The complete narrative consisting of the sequence of stories generated by each focalizing character may be inconsistent. For example, the combination of the stories shown in Figure 1 and 2 is contradictory because a single gift is put by the father and Santa Claus simultaneously. This inconsistency among the repeated stories with different focalization arises especially when the focalizer is an unreliable narrator – that is, the focalizing character is ignorant of the truth or does not tell the truth on purpose. As the focalizing characters tell new facets of the story, the whole truth may be revealed either incrementally or may take new turns unexpectedly. This may be effectively used with the help of narrative devices such as foreshadowing or flashforward techniques for specific dramatic effects such as suspense or surprise. [1][5].



(a) Character A's Story Plan Construction



(b) Character B's Story Plan Construction

Figure 4. An Example of Story Generation with Multiple Internal Focalization

IV. EXAMPLE

This section explores the narrative structure and focalization (especially multiple internal focalization) in film Rashomon (1950) based on our approaches explained in the previous section.

A. Narrative Structure in Film Rashomon (1950)

In film narratives, focalization is often combined with other narrative techniques such as cinematographic techniques and styles (e.g., flashback, mise-en-scene, etc. [3]). Among many films, Rashomon (film directed by Akira Kurosawa, 1950) is a seminal work. In his film Rashomon, Akira Kurosawa employs multiple internal focalization to portray human nature that forces us to see only what we want to see (or believe). In Rashomon, other native techniques such as *unreliable narrator* (in which narrator's reliability is assumed to be harmed due to various reasons such as the narrating character's desire or intent) are effectively merged with focalization for dramatic effects.

Rashomon has a complicated narrative structure. Basically, as simply shown in Figure 5, it is a two-level *embedded narrative* (where characters in the narrative tell a story or stories to other characters – e.g., Scheherazade in *The Arabian Nights* [2]). In the first level, two characters (Woodcutter, Priest) tell another character (Commoner) a strange story that they witnessed in the court on that day as a form of flashback while waiting for the rain stop. In the second level narrative (where main characters are the Bandit, the Samurai, and the Samurai's wife), same events are iterated with many different facets by the three characters with their own perspectives as a form of recall witness in the court (where a medium tells the story on behalf of the dead Samurai). Finally, Woodcutter himself is found to be involved in the second level narrative and repeats the story with his own perspective, though which is not actually the whole truth. The repetition of the same events with different focalization (and/or narration) makes the audience to realize that the same events can be viewed differently depending on the belief and focus of the narrator. As a result, the audience wonders what the truth is and what actually happened in the woods — corresponding to the *fictional actual world* termed by Ryan [15]. The details from each character are often incompatible to some extent due to the use of unreliable narrator. For instance, the Samurai is killed by the sword of the Bandit in the narration/focalization version of both the Bandit and Woodcutter, though the detailed description is different from each other. In the narration/focalization of the Samurai/Medium, however, the Samurai commits suicide with his wife's dagger.

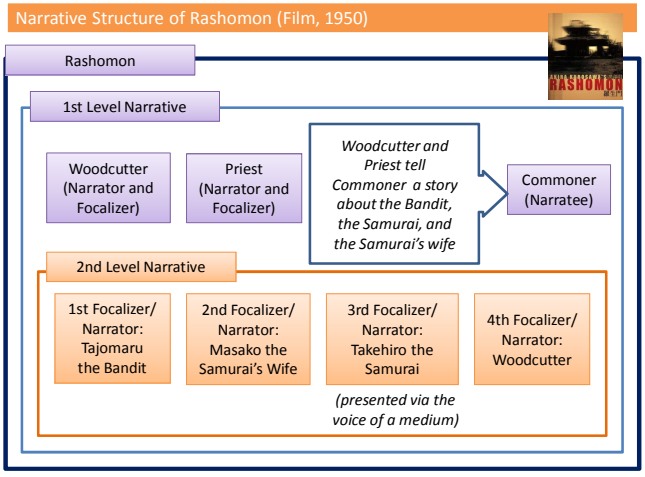


Figure 5. A Simplified Narrative tructure of Film Rashomon (1950)

B. Multiple Internal Focalization in Rashomon

This subsection explains how our planning-based approach can generate multiple stories based on the given common facts and distinct focalizing factors through the Rashomon example.

Figure 6 and Figure 7 illustrate two possibly different output story plans which are constructed based on Rashomon story. Figure 6 represents a story generated from the viewpoint of Tajomaru the Bandit, achieving the given goal conditions which are represented as (tied Takehiro), (captured Masako), (raped Masako), and (dead Takehiro). Figure 7 shows another story generated from the perspective of Masako the Samurai's wife, achieving the same goal conditions. While the given goal conditions are the same to both characters, distinct focalizing factors are defined. For

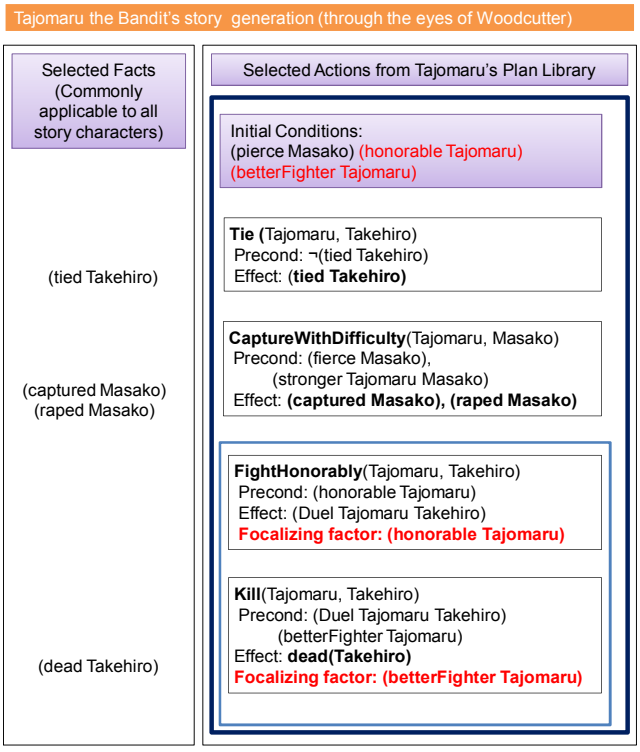


Figure 6. Tajomaru the Bandit's story generation based on Tajomaru's Plan Library and his focalizing factors where Tajomaur's focus of narration is (honorable Tajomaru) and (betterFighter Tajomaru).

Tajomaru the Bandit, his focalizing factors are defined as his belief that he is an honorable and better fighter, which is associated with his focalized object – fighting with Takehiro. As a result, the process of action selection from his plan library achieving the given goals is influenced to select such actions that are associated with the focalizing factor. For Masako the Samurai's wife, in a similar vein, the action selection achieving the same goal conditions is limited due to her own focalizing factors. In the example shown in Figure 7, Masako's focalizing factors are defined as her husband's contemptuous look associated with her belief that she is pitiful, which governs her next action selection. As a result, she selects her actions to show how she is a pitiful woman under her husband's contemp. In other words, due to her focus of narration (i.e., focalizing factors), she is forced to select completely different actions from the other focalizing characters such as Tajomaru.

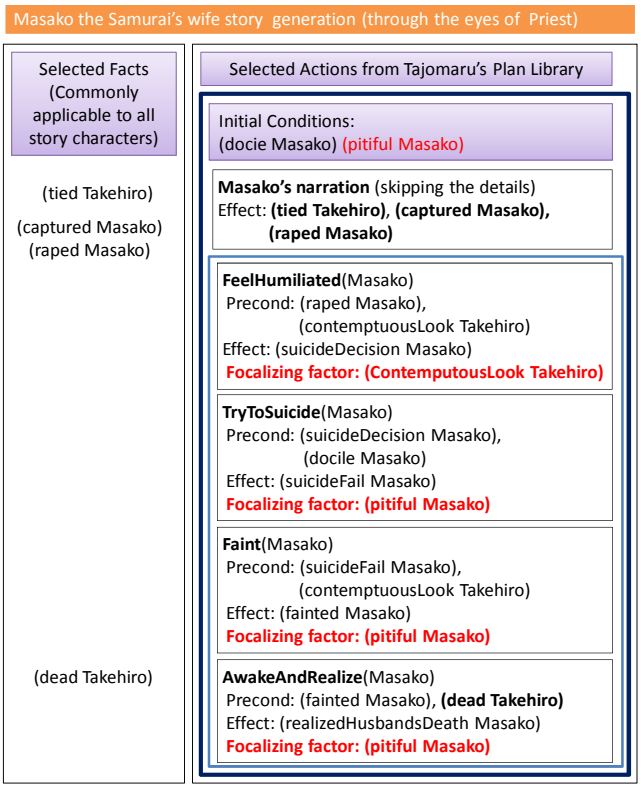


Figure 7. Masako the Samurai's Wife story generation based on Masako's plan library and her Focalizing factors where Masako's focus of narration is (ContemputousLook Takehiro) and (pitiful Masako).

V. Conclusions and Discussion

In summary, this paper presents a model of focalization using planning-based approaches in which plan libraries can represent partial and incorrect knowledge of the characters participating in a story. Inspired by film Rashomon (1950), we suggest the use of focalizing factors which can control the story generation according to focalizing characters. In our approach, the manipulation of focalizing factors will generate multiple stories with different focus of narration.

We believe that our approach can be employed in games and interactive storytelling for enhancing the dramatic impact on the player and the audience. We also believe that story generation with different character focalization might be effective for educational purposes in terms of creativity and empathy since students can view the hidden aspects of the events that they could not see through with their own perspectives. For instance, the use of different perspectives can be considered as a part of a solution to improve social relationship at school through a serious game [18].

While multiple internal focalization can give rich and various explanation about complicated events by iterating the same story with different perspectives, it can also make the reader/audience bored due to the iteration. To avoid this, in film narratives, various approaches are made. For example, less important events can be skipped or abbreviated by controlling the tempo of the film. A variety of different camera shots/techniques can be employed to give variation to the iterated stories. In addition, use of different background music will also keep the reader/audience from perceiving the same experience (e.g., in film Rashomon, *Maurice Ravel's Bolero* theme is impressively used to imply the character's confusion in Masako's narration).

As future work we plan to accommodate the effect of other narrative/film idioms, including various camera control techniques, associated with focalization.

Acknowledgments

References

[1] Bae, B. and Young, 2008. A use of flashback and foreshadowing for surprise arousal in narrative using a plan-based approach. Proceedings of the International Conference on the Interactive Digital Storytelling

[2] Bal, M. 1997. Narratology: Introduction to the Theory of Narrative. 2nd Ed. University of Toronto Press.

[3] Bordwell, D. and Thompson, K. 1990. Film Art: An Introduction. 3rd Ed. McGraw-Hill Publishing.

[4] Brooks, K.M. 1996. Do Story Agents Use Rocking Chairs? *ACM Multimedia 96*.

[5] Y. Cheong. 2007. A computational model of narrative generation for suspense. Ph.D. Dissertation, Department of Computer Science, North Carolina State University.

[6] Genette, G. 1980. Narrative Discourse: An Essay in Method, Tanslated by Lewin, J.E. Cornell University Press.

[7] MacIntyre, B. and Bolter, J. D. 2003. Single-Narrative, Multiple Point-of-View Dramatic Experiences in Augmented Reality. *Virtual Reality*, 7(1), pp. 10-16.

[8] Miller, C.H. 2008. *Digital Storytellng: A Creator's Guide to Interactive Entertainment*, 2nd Ed. Focal Press.

[9] N. Montfort. Generating narrative variation in interactive fiction. PhD thesis, University of Pennsylvania, Philadelphia, PA, USA, 2007

[10] Pizzi, D. and Cavazza, M., 2007. Affective Storytelling Based on Characters' Feelings. AAAI Fall Symposium on Intelligent Narrative Technologies, Arlington, Virginia.

[11] Porteous, J., Cavazza, M., and Charles, F. 2010. Narrative Generation through Character's Point of View. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*.

[12] Prince, G. 2003. *Dictionary of Narratology*, Revised Ed. The University of Nebraska Press.

[13] Riedl, M. O. and Young, R. M. 2004. An intent-driven planner for multi-agent story generation. In *Proceedings of the 3rd International Joint Conference on Autonomous Agents and Multi Agent Systems*, 186-193.

[14] Rimmon-Kenan, S. 2002. *Narrative Fiction: Contemporary Poetics*. Routledge.

[15] Ryan, Marie-Laure. 1991. *Possible Worlds, Artificial Intelligence, and Narrative Theory*. Bloomington: Indiana UP.

[16] Todorov, T. 1975. The Fantastic: A Structural Approach to a Literary Genre. Cornell University Press.

[17] Toolan, M. 2001. *Narrative: a critical linguistic introduction*, 2nd Ed. Routledge

[18] Yannakakis, G.N., Togelius, J., Khaled, R., Jhala, A., Karpouzis, K., Paiva, A., and Vasalou, A. 2010. Siren: Towards Adaptive Serious Games for Teaching Conflict Resolution, In *Proceedings of the 4th European Conference on Games Based Learning (ECGBL 10)*, Copenhagen, Denmark

[19] Zhu, J., Ontañón, S., and Lewter, B. 2011. Representing Game Characters' Inner Worlds through Narrative Perspectives. In *Proceedings of the 2011 Foundations of Digital Games Conference (FDG 2011),* Bordeaux, France.

[20] Fallout 3. http://fallout.bethsoft.com/

[21] Assassin's Creed. http://www.ubi.com

[22] Heavy Rain. http://www.heavyrainps3.com/